



# Critical Factors to Successful Website Development: Opinions of Website Designers and Developers

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## ABSTRACT

*This study was conducted to help understand the factors involved in building a successful website. A national survey of professionals in the areas of Web site design and development were contacted. Based on past published writings in the literature eight factors were identified as critical to the success of website functionality. The factors that are consistently posited in the literature are: 1) Entertainment and Visual Appeal, 2) Reliability, 3) Cost Reductions Attained, 4) Back-End Processes Enabled, 5) Personalization, 6) Information Quality, 7) User Empowerment, and 8) Privacy/Security. Study results are based on the analysis of 349 responses and provide support for the research hypotheses.*

**Keywords:** *Consumer-Web Site Interaction, Corporate Web Site, Internet Marketing, Web Site Design, Web Site Development*

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## INTRODUCTION

The field of electronic commerce is registering significant and sustainable growth in the U.S.A. In its earlier days, creating a website focused on providing information about the company and its products/services. Today, it is more about a place to conduct business and to develop long term relationships with customers. In the United States alone, there are over 210 million users of the Internet; this equates to almost 70% of the

population. Worldwide, over 1 billion people are surfing the (World Internet Usage, 2007) the millions of websites on the Web (<http://www.geekpedia.com>; <http://www.ciadvertising.org>). Given new websites are created every minute, it is impossible to know the precise number of websites. The plethora of Web development tools available has simplified the launching of new websites; this has led many entrepreneurs and businesses to rush websites development often at the cost of quality issues. Clearly, the old axiom, "If you build it, they will come" may no longer be applicable to website design. For

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many businesses the problem is two-fold; they do not: (1) fully understand how a successful website gives them a competitive advantage, and (2) know how to produce a successful website (Eisammani, Hackney, and Scown, 2004). In a study conducted by Forrester Research (cited in Nielsen, 1998b), it was found that 50% of lost sales were due to inadequate website design. Lost sales were attributed to customers who left the website because they either (a) couldn't navigate the site to complete a purchase, or (b) was not able to find what they wanted on the site even though the item was listed. Similarly Schaffer (2000), states one reason consumers leave a website without purchasing is because they are not able to navigate their way through the site. In addition, once a consumer has had a negative experience on a website, they are less prone to return to the site resulting in even a greater loss of potential revenue. Unless a site can convince a visitor to remain on the website it is difficult to establish a rapport with the visitor. Myspace.com and Yahoo.com are the first and second most popular websites because of their fast and simplistic design (<http://internet.seekingalpha.com/article/25309>). Similarly, in the U.K., consumers voted Profileheaven.com the best website of 2006 because of its content, navigation, and design; this suggests that designing a successful website improves a company's standing in the marketplace (<http://www.websiteoftheyear.co.uk/winners.php>).

Clearly a website is an interface between an organization and its stakeholders such as customers, financial community, suppliers, etc. The interface is strategically important so as to gain a competitive advantage both locally as well as globally. As a consequence, a few studies have attempted to determine how consumers evaluate websites. However, little is known about that those who actually create, operate, and maintain the website operations think regarding the key issues of website design. Although, consumers' opinions are important, we believe it is equally important to seek the opinion of the professionals in the field regarding the factors they think make or break website operations. For most establishments, it is too

difficult or cost prohibitive to seek the opinions of consumers. As a result, companies are forced to rely on the expertise of the Web designers. For example, in a survey of small and medium size businesses over 80% sought assistance of the Web designers and developers outside their organizations before activating their websites (Eisammani, Hackney, Scown, 2004).

Thus, this study fills an important void in the existing literature. This void is filled by (1) surveying the professionals in the area of website design and development, (2) polling a national sample of Web designers and developers instead of using convenience samples of past studies, and (3) building upon past exploratory studies by focusing on the factors reported to be significant in more than one study.

Published writings in the literature suggest eight factors are critical to website functionality success; these factors are the basis for this study and are discussed in the next section.

## LITERATURE REVIEW

Electronic commerce continues to grow rapidly and has touched almost all sectors of the economy. Still, online commerce often lacks the physical touch, feel, and smell, associated with off line businesses. As a consequence, the website performs the function of a salesperson building trust in customers' minds about the company and its offerings (Del Giudice & del Giudice, 2003). As suggested by Reichfeld and Schefter (2000), a successful website should encourage customer loyalty. This is easier said than done as customers have literally millions of websites from which to choose. Recognizing the arduous task of attracting and retaining repeat visitors to websites, a number of past academic studies as well as writings in trade books, have attempted to offer solutions addressing the issue of successful website development and creation (e.g. Nielsen, 2000; Nielsen, 2003; Ranganathan & Ganapathy, 2002; Ranganathan & Grandon, 2005; Palmer, 2002). These studies and professional books in the area provide useful insights regarding the factors that may influence the



success or failure of websites. Still, as correctly pointed out by Lin and Lu (2000) and Dhyani et al. (2002), implicit assumptions about successful websites and factors responsible for their success are not clearly known. A large portion of past studies have been conducted primarily using convenience sampling to survey customers (e.g. Light & Wakeman, 2001; Pollard and Blyth, 1999). The studies have either focused on the content or the functions of websites. For example the studies have looked at the issues of relevance or quality of content (Perkowitz & Eitzioni, 1999; Bhatii, Bouch, & Kuchinsky, 2000) and functions such as interface and search engine (Slatin, 2001; Thelwall, 2000). A large number of studies have been exploratory rather than confirmatory in nature (Liu & Arnett, 2000a; Simeon, 1999). Adding to the confusion is the fact that a variety of different factors have been studied in the past with studies not consistently identifying and building on previous work of others (see for example Zhang & Myers, 2005; Cao & Zang, 2005; Nour & Fadlalla, 2000; Nielsen, 2003; Ranganathan & Ganapathy, 2002; Palmer, 2002; Jones, Clarke-Hill, Shears, & Hillier, 2001). Given the plethora of variables studied in the past, our study builds upon previous research and focuses on those key factors that have been reported to be significant in more than one study. The factors that are consistently posited in the literature are: 1) Entertainment and Visual Appeal, 2) Reliability, 3) Cost Reductions Attained, 4) Back-End Processes Enabled, 5) Personalization, 6) Information Quality, 7) User Empowerment, and 8) Privacy/Security. These factors have been statistically supported in the published studies (e.g. Chakraborty, Lal, Warren, 2003; Zhang & Giesel M. von Dran, 2000; Nielsen, 2003; Ranganathan & Ganapathy, 2002; Ranganathan & Grandon, 2005; Palmer, 2002).

Each of the eight factors is discussed below:

1. **Entertainment and visual appeal:** This factor relates to the aesthetic and affective aspect of the website design. It refers

to how well the website is designed in terms of visual as well as audio characteristics and the creative elements embodied within the site. Web designers such as Nigel Homes approach the design of a site using a 'point of view.' He takes information and translates it into understandable forms. No matter how accurate and usable a design needs to be, that won't come through to the user unless the visual is able to draw them into the site (Mok, 1996). Website design faces the challenge of orienting the user to the meaning and flow of the site as well as creating an immediate relationship between the user and the information presented. It must address the issues of the color, text, font size, videos and sound all of which contribute to the appeal of the website.

The visuals refers to how well the graphic design principles are adhered to so as not to detract from the informational content on the website. User gratification literature in the mass communication discipline suggests that entertainment and visuals are important in drawing a visitor to a website (Anderson & Meyer, 1975; King, 1998; Katerattanakul, 2002). The Korgaonkar and Wolin (1999) study suggest that entertainment is one of the major gratifications sought by consumers for surfing on the Web. Humor has also been found to play a part in the entertainment aspect of a website (Katerattanakul, 2002). A study on the acceptance of hand held Internet devices found that the attribute of how much 'fun' the device offered was even more important than the utilitarian feature of 'usefulness' of the device (Bruner II & Kunar, 2005). Many examples in the virtual world bear out these assumptions. Bingo players return again and again to riverbellebingo.com to play bingo in a highly social and fun environment. Chat rooms are available where players can take a break and socialize with other visitors, creating a 'bingo' community (PR Newswire, 2007). Universal Pictures has recently launched a visually rich and compelling



interactive mobile web (WAP) that consumers can enjoy on their mobile phones. Universal is a pioneer in integrating technology with its marketing strategy (PR Newswire, 2007). Therefore, we hypothesize:

**H1:** *The entertainment and visual appeal factor will be positively associated with successful websites.*

2. **Reliability:** This factor refers to the ability of the user to order a product/service or retrieve information from the website on a consistent basis. Reliability is a key factor in any product/service transaction. In one study it was rated as the most important factor in the deliverability of services (Parasuraman, Barry, & Zeithaml 1993). When transferring the concept of reliability to the design of a website, it is often difficult to convince customers that their transaction will be performed as they expect. A reliable website allows for error free transactions and, correspondingly, results in surfers develop trust with the website and the company. The site must be able to deliver accurate computing and error free transactions if it is to be viewed as a reliable site (Katerattanakul, 2002). Another study found that the processing system utilized was key in the integrity of the site (DeLone & MacLean, 1992).

Several companies' measure reliability as an aspect of the site's ranking. While finding that response time was fast, many mobile sites still had problems with reliability issues and outages (Wireless Week, Sept. 1, 2005). The head of marketing and communications for the financial website TrustNet, found that reliability of service and ease of use were the crucial elements linked to the success of TrustNet (Money Marketing, Nov. 20, 2003). The American Accreditation Healthcare Commission will only give its seal of approval to health-related websites such as WebMD, if the site assures the reliability of online health information and

protects users' privacy (Pharmaceutical Executive, Jan. 2002). In order to create a trustworthy website a company needs sufficient technical, financial, and managerial resources. Without resource support the reliability of the website would be questionable and may lead to failure. So we hypothesize:

**H2:** *The higher the reliability of the website, the higher the probability the website will be successful.*

3. **Costs reductions:** One of the promises of the Internet is its ability to provide business performance efficiencies. For example, the disintermediary function provided by website operations allows a company to go directly to customers which enables the company to achieve significant costs reductions in procurement, distribution, and marketing. Firms place 'Cookies' on user's computers; 'cookies' are small files firms designed to allow firms to track the customer (Laudon, 2006). When the customer returns to the website, the firm retrieves the data placed on the cookie and can respond to the customer in a one-to-one manner. Big travel websites such as Travelocity, Expedia and Orbitz are helping companies reduce the skyrocketing cost of air travel by setting fare parameters and routing employees to less expensive flights and hotels. Memorial Health System has been experimenting with best supply chain practices. It anticipates saving over \$2 million per year. On average, hospitals using GHX software report 25% fewer ordering errors and 80% reduction in order discrepancies (Hospital Materials Management, 2005). Online successful companies such as E-bay are directly related to the cost reductions attributable to their successful website operations. A recently published study designed to measure the business benefits of electronic commerce (Zhuang & Lederer, 2003) reports cost reductions and back-end efficiencies as



the two important benefits of e-commerce. Some firms view their website as a way to reduce both the number of employees, both clerical and professional, and their compensation costs and correspondingly to flatten their management structure. This in turn leads to more flexibility and adds to the organization's competitive advantage. We hypothesize that:

**H3:** *The higher cost reductions achieved by the website operation, the higher the chances of creating a successful website.*

4. **Back end operations:** In addition to cost reductions the website operation allows a company to improve efficiencies in the company's backend operation. For example, in a published study of users versus nonusers of electronic data interchanges the authors found a significant difference in the backend improvement of the two groups. Specifically, the user group, when compared to the nonusers, had improvement in back end operations such as customer service, data control, less clerical errors, etc. Tiwana and Ramesh (1999), suggest that one of the key benefits of e-commerce investment is improving internal business process. We expect that by providing electronic tracking services of shipped products/services and electronic billing services, the company is able to improve its customer service. Additionally, electronic auditing and data control operations contribute to improving the efficiency and effectiveness of the website. With functionalities such as extranet designed into the website, vendors can access the portion of the site particular to their needs. They can determine in real time how much stock the company has and when to refill stock. The globalization of business has infiltrated website design by allowing instant communications with and between regional offices. Tools such as intranets are allowing companies to 'meet'

through the firm's website. Software such as Trackpoint allows easy tracking of the real-time status of projects and is especially useful to subcontractors (Contractor, 2005). Broadband Internet connections are re-vamping back-end systems in warehousing. The new systems connect shippers faster to their inventory and transportation information (Traffic World, 2006). Curt Barry, an operations consultant, states, "Back-end technology is so pervasive today that without it even the most resourceful operations executive would find it tough to perform basic warehouse tasks" (Catalog Age, 2003). This leads us to hypothesize:

**H4:** *The greater the improvements in backend operations, higher the chances of creating a successful website.*

5. **Personalization:** As defined by Chakraborty, Lala, and Warren (2003), personalization means treating Web visitors as individuals not just as one of many. As suggested by Bakos (1991, 1997), one of the important ways to reduce customers' frustrations and search costs is by providing customized information. The personalization features allow the website developer to overcome the impersonal nature of the Internet. In addition, personalizing a customer's website allows the customer to interact with the site in a quick, efficient manner. A purchase can be made using a 'one-click' technology such as Amazon.com uses, or a quick buy using only a password for access to the users file. Companies such as Changing World are marketing software that will personalize ad campaigns to ensure relevance to the customer. Clixsmart is one such personalization technology now available (Business Wire, 2007). Specific customer segments are being catered to with personalized sites such as BOOMj.com. This is a social network geared toward the Baby Boomers (PR Newswire, 2007). Ellen T. Fisher, who spearheaded websites for



women, thinks that the future of websites is about filters, buying recommendations and creative personalization" (Knight Ridder Tribune Business News, 2007). Hence, we hypothesize:

**H5:** *The higher the degree of personalization, the higher the chance of success.*

6. **Information quality:** Early critics of the Internet posited that the information on the Web consisted mainly of advertising and personal promotion. As such, the medium was looked at as being of "dubious quality." They suggested that things such as the standing and professional qualifications of the site's author be identified as well as identifying the source of the content (Wilkinson, Bennett & Oliver, 1997). Increasingly, the quality of information is becoming more important to web surfers than the quantity of information. As stated by Lohse and Spiller (1998), web surfers want careful, continuous, useful communication across geographic boundaries. It is important that the website users know that the information posted on the site is reliable, accurate, and trustworthy. This is validated in a study of hygiene and motivating factors used in website evaluations reported by Zhang and von Dran (2000). The researchers surveyed website users to indicate the most motivating factor in the users' evaluation of the websites; the users indicated the level of new learning and/or new skills learned from the website as the most important factor leading to a positive evaluation. Another study validated that the quality of the website was instrumental in the success of the site (Palmer, 2002). Functionalities such as order taking, delivery and customer knowledge need to be accurate in order for a firm to succeed. Laudon (2006) sees the quality of information as a direct link to the quality of decision making. He offers seven dimensions of information quality on a website.

They are accuracy, integrity, consistency, completeness, validity, timeliness and accessibility. If the underlying information is wrong, decision-making suffers. Yang, Hung, Sung and Farn (2006) found third party seals and product information quality positively affected consumers' trust and led to more high involvement. A website called Internet Detective provides an introduction to issues of information quality and teaches users how to evaluate the quality of a website (Pack, 1999). Since there is relatively no quality control on the Internet, Donald Hawkins offers advice on how to determine what information is credible. He advises the use of site reviews, considering the links to and from the site, and the use of WWW Virtual Library on information quality to view selected sites (Hawkins, 1999). Hence, we hypothesize:

**H6:** *As the quality of the information content improves, so does the success of websites.*

7. **User empowerment:** One of the pivotal features of the Internet is the fact that it allows the surfer to interactively choose when and how to surf the net (Korgaonkar & Wolin, 1999). The organization of the pages on the website should make logical sense to the surfers thereby improving their ability to navigate (Porter, 2003; Eleniak, 2003). An excellent example is the electronic auctioneer Ebay.com. Ebay's system allows the prospective bidder to find out all the details of the ongoing bidding for a product or service. Additionally, it provides a safeguard of security of payments via its trademark system called Paypal. The prospective purchaser has multiple opportunities to change the bidding price up until last minute. Thus, the user feels he/she is in charge of his/her bidding strategy. The attribute of easy navigability further reinforces the idea that the surfer is in charge (Lawton, 2007). Websites such as YouTube, MySpace are empowering users



to display their personal information. A recent study by Chakraborty, Lala, and Warren (2003) of business customers suggested that interactivity with the website as one of the top two important factors in their assessments of the websites. The factor of interactivity relates to the control the surfer has in navigating the website. This leads us to hypothesize:

**H7:** *As the degree of user empowerment increases, so does the success of websites.*

8. **Privacy and security:** The fact that personal information is transmitted through many different systems and servers before it reaches the final destination has website designers incorporating as many security systems into the site as deemed necessary. There are many ways to access and penetrate a website through the users' computer, the actual communications lines and the corporate servers. Users can experience unauthorized access, worms and viruses. The lines that transmit data are vulnerable to theft, fraud and message alteration. Corporate servers can experience hacking, viruses, worms and denial of service attacks (Laudon, 2006). Almost every week there is a story in the popular media related to the issues of breach of privacy and security from federal government computers; for example, data on millions of veterans stolen and private businesses such as AOL reporting accidentally releasing subscriber data (InformationWeek, Feb.12, 2007). In May 2007, banking giant J.P. Morgan 'lost' data containing information on 47,000 high-end accounts in the Chicago area. In September 2006, 2.6 million Circuit City account holders were notified that their data had been accidentally discarded. John's Hopkins University and John's Hopkins Hospital lost data on more than 135,000 patients (WSJ, 2007). The constant barrage of stories related to Internet fraud due to stolen identities and consumer

financial records have made this issue of major concern (Yoon, 2002; Korgaonkar & Wolin, 1999). A recent poll by the Pew organization validates that the respondents were worried about the lack of control over the collection, use, and sharing of personal information over the Internet. Secure websites are necessary for e-commerce to thrive (Fallows, 2005; Fox, 2000). A company called Truste, which certifies over 1,500 websites, found that consumers are more likely to feel comfortable using a site that has a seal of security much akin to the old Good Housekeeping Seal. New websites such as newegg.com proudly display the Truste symbol (Stark & Wind, 2005). Several privacy protection laws have been enacted to aid in the fight against illegal use of information. The Gramm-Leach-Bliley Act of 1999 includes protection for customers of financial services. The Health Insurance Portability and Accountability Act of 1996 (HIPAA) protects against a person's medical records being released to unauthorized individuals (Laudon, 2006). Several studies have found that the ability to provide a site that employs a secure accessing message such as e-trust will have a better chance at convincing a potential customer to buy from that site than other sites. (Ba, Winston & Zang, 1999; Javenpaa & Todd, 1997; Guay & Ettwein, 1998). Thus we hypothesize

**H8:** *As the privacy and security issues are addressed successfully, it will improve the websites' chances of success.*

The next section details the method used to test the aforementioned hypotheses.

## METHOD

The data for the study were collected by surveying 3000 national Web designers and developers. The data collection was conducted in three phases. First, a pre-notification letter was sent



indicating the purpose of the project seeking their cooperation. Second, each respondent was mailed two identical questionnaires except one was clearly titled and labeled as successful and the other unsuccessful. They were requested to respond to either or both questionnaires based on their past experiences. The respondents were assured of both confidentiality and anonymity. Several weeks later, the same two questionnaires were mailed again to the respondents urging them to respond only if they had not done so previously. A total of 349 usable responses were obtained from the mailing.

## Measurement

**SUCCESS/UNSUCCESS:** The dependent variable of successful vs. unsuccessful was measured as a dichotomous (1) success, and (2) unsuccessful variable. The measurement was consistent with the past research in e-commerce as well as in other business areas and provide nomological validity (e.g., Tai, 2007; Cooper, 1979 ; Smith, 2003; Macmillan, Zemmann & Subbanarasimha, 1987; Korgaonkar & Belenger, 1985; Korgaonkar, Moschis & Belenger, 1984, Korgaonkar & O'Leary, 2006). Additionally, the respondents were asked to provide criteria used to determine if the website was a success or failure based on checking one or more of the following six options: online sales, usability of the site, post purchase service, customers' comments, number of clicks on the website, and other. The Chi Square test indicated no significant difference (6.01 with

5 degrees of freedom,  $p < .75$ ) between the six types of success/failure responses and overall success/failure. Hence, the hypothesis testing was carried out with the overall success/failure measures as the dependent variable.

## Sample Profile

Pertinent background information was collected regarding the company, the market, the product, and the degree of involvement of the respondents in the website development. The data related to these variables is shown in Table 1.

## Independent Variables

The survey instrument for the study was developed based on published studies in the area (e.g. Chakraborty, Lala & Warren 2003; Zhang & von Dran 2000; Zhuang & Lederer 2003; Ranganathan & Ganapathy 2002; Palmer, 2002). As stated earlier, each survey was clearly marked as either "successful" or "unsuccessful" on the top of each questionnaire. Additionally, the caption pertaining to the survey statements read as follows, "Below you will find statements about successful (unsuccessful) Web site that you were involved with". Please indicate the level of agreement with each statement on a scale of (1) completely disagree, (2) strongly disagree, (3) somewhat disagree, (4) neutral, (5) somewhat agree (6) strongly agree (7) completely agree." This was followed by the statements designed to tap the eight factors of visual appeal, reliability, cost reductions,

Table 1. Profile of the survey respondents

How involved were you with the Web site development?	
Possible Responses	Percent
Very involved	34
Somewhat involved	27
Slightly involved	18
No involved	21

\*Check all that apply. Multiple responses possible



backend operations, personalization, information quality, user empowerment, privacy and security. The items designed to tap the eight factors were factor analyzed via varimax rotation. The results of the factor analysis are reported in Table 2. The results indicated the presence of hypothesized eight factors with Eigen values greater than one and explaining almost 75 percent variance. Table 2 shows each factor and statements that clearly loaded on only one factor with loading values of 0.5 or higher. A scale for each individual construct from the factor analysis was created by summing up the responses to the corresponding items. The factor analysis provided the construct validity of the scales. Additionally, the reliability coefficient alpha for each of the summated scale is reported in Table 2. The values for the eight scales were in the range of 0.80 to 0.91 which suggests high reliability.

After establishing the validity and reliability of the scales, the hypotheses were tested by employing multiple discriminant analysis. The dependent variable in the analysis was the variable of successful versus unsuccessful web site. The predictor variables were the eight hypothesized factors measured by the summated scales. The results of multiple discriminant analysis are reported in Table 3 A, B, and C.

The results indicate that each of the hypothesized eight factors is significantly ( $p < .001$ ) related to the success of the website operation. Additionally, the discriminant function is significant at  $p < .001$  level. The high statistically significant relationship of each of the eight factors is also confirmed by the high "hit" rate or the 90.5 percent rate of correct classification of the cases as successful or unsuccessful. Thus the analysis was in support of our hypothesized relationships between the eight factors and the success of websites. The next section provides the implications of the study results.

## DISCUSSION

The results suggest that all eight factors have a significant and positive influence on the success-

ful development of a website. The respondents agree that a website that is entertaining and fun to explore is more likely to be successful over a bland and boring website. Similarly, the use of multimedia which is designed judiciously and tastefully so as not to overload the system and cause delays, is more likely to lead to success. Eye-catching images and attractive background are preferred over dull and boring ones by these respondents.

However, it is important that the cuteness of the site does not distract the visitor from the central purpose of the website and that the website should be attractive and useful. A reliable site backed with sufficient resources of talented personnel, financial, and technical infrastructure will pave the way towards success. Alba et. al (1997) posit that reliability is one of the four important features considered by consumers in their evaluation of websites. These resources could be directed towards developing a website that puts the Internet surfer in the driver's seat. The control afforded the surfer allows him or her opportunities for interactions as well as the speed of interactions of the surfer's choosing. For example, Smith and Brynjolfsson (2001) found that reliability was an important factor for consumers who use comparison websites with shop bots. As the international audience for the websites continues to grow, so does the reliability factor (Internet World Stats, 2005). Another important factor leading to success is the degree of personalization made possible by the website. One of the characteristics of the Internet is the impersonal environment in which the buyers and sellers find themselves communicating and transacting. Impersonalization contributes to a less trusting relationship between the parties exchanging information and/or products and/or services. As a result, more successful websites are attempting to find ways of personalizing their presence on the Internet. For example, a recent article in the Wall Street Journal (Gaiter and Brecher, 2006) reports on the success of a few wine sellers who have made efforts to personalize their websites and as a result found new customers. However, attempts to personalize a website



*Table 2. Factor analysis of the statements designed to measure the eight constructs\*and the reliability coefficient alpha of the composite scales*

Construct	Statements	Loadings	Reliability Alpha
1) Entertainment and Visual Appeal	The website was fun to explore	0.701	
	The website design made use of appropriate multi-media	0.708	0.912
	The website was entertaining	0.729	
	The website had eye catching images and/or title on the homepage	0.815	
	The website had attractive screen background and pattern	0.812	
2) Reliability	The website enabled error-free transactions	0.659	
	The website was reliable from the users' perspectives	0.606	0.894
	The website was supported with sufficient technical resources	0.638	
	The website was supported with sufficient financial resources	0.715	
	The website was supported by trained personnel	0.685	
3) Cost Reductions Attained	The website reduced administrative costs	0.737	
	The website reduced customer support costs	0.787	0.901
	The website reduced information processing costs	0.699	
	The website reduced marketing costs	0.690	
4) Back End Processes Enabled	The website facilitated shipment tracing for the company	0.804	
	The website facilitated billing function of the company	0.819	0.853
	The website facilitated electronic auditing for the company	0.785	
5) Personalization	The website gave personal attention to the user	0.692	
	The website had features that made it easier to personalize it to the User's needs	0.825	0.884
	The website stored users' preferences and offered them service or information based on the preferences	0.701	
	The level of personalization at this website was about right, not too much or too little	0.742	
6) Information Quality	The website was for organization of good reputation	0.691	
	The website provided objective information	0.705	
	The website helped the users research products/services	0.681	



Table 2. continued

Construct	Statements	Loadings	Reliability Alpha
	The information presented on the website was fair and accurate	0.736	
7) User Empowerment	The website user could control opportunities for interaction	0.816	
	The website user could control how fast to go through the website	0.768	0.883
	The website users could control order and or sequence of information access	0.793	
8) Privacy and Security	The website had adequate security features	0.693	
	The website assured that user data was encrypted	0.815	0.877
	The website made sure customers could feel safe conducting transactions	0.681	

\*Only the statements with loadings on only one factor with the values of 0.50 or higher are included.

Table 3.

Results of the Discriminant Analysis (A)					
Test of Equality of Group Means between Successful Versus Unsuccessful for each of the eight discriminating variables. *					
Independent Variables	Wilks' Lambda	F statistics	Degrees of Freedom1	Degrees of Freedom2	Significance
Entertainment	0.468	370.904	1	326	0.001
Reliable	0.541	276.741	1	326	0.001
Cost Reduced	0.585	231.358	1	326	0.001
Back End	0.882	43.488	1	326	0.001
Personalization	0.670	160.425	1	326	0.001
Information Quality	0.791	86.142	1	326	0.001
User Empowerment	0.823	70.274	1	326	0.001
Privacy/Security	0.838	63.176	1	326	0.001

• Sample size is 328 as 21 cases had at least one missing discriminating variable.

may sometimes lead to seeking information that may jeopardize the privacy and security of the surfers. As the Internet continues to grow

in its popularity, it also attracts unscrupulous individuals determined to steal consumers' identity and money. For example, in the aftermath



of Hurricane Katrina dozens of unauthorized websites were soliciting donations under the Red Cross logo (Bulkeley, 2006). Recent incidents of theft of personal data from the US Veterans administration, combined with the theft of U.S. Census laptops containing personal information have significantly raised the concerns of consumers regarding the safeguards of their personal data. A successful website needs to balance the need for personalization with the safety of the data obtained from the surfers and users of the site.

The Internet has become successful in providing massive quantity of data easily and cheaply on virtually any topic or subject. However, getting access to good and reliable information is not always easy. A recent study indicates that getting quality information about a wide variety of products is important to increasing number of shoppers (Shop.org, 2005). As a result, the quality of the information content is becoming as or more important than quantity. The respondents in this study clearly support the importance of this issue by agreeing that to be successful a website has to provide information that is relevant, up to date, as well as accurate.

Finally, the survey respondents suggest that a successful website should also assist the organization in controlling costs as well as improving backend functions. The improvements in backend operations could lead to providing better customer service and operational efficiencies enabling the organization to serve its constituencies in a superior way. Lederer et. al (2000) found that consumers are more inclined to use a website if it saved them time and effort. A good example is the Dell Computers website that allows the shopper to customize the computer to his or her needs, order and pay for it online, and trace the shipment status online. It significantly reduces the transaction costs for the buyers and sellers.

The results of this national sample study improve the usefulness of the findings for those who are aiming to create successful websites. To build a successful website, a designer must focus on the eight factors investigated here:

1) Entertainment and Visual Appeal, 2) Reliability, 3) Cost Reductions Attained, 4) Back-End Processes Enabled, 5) Personalization, 6) Information Quality, 7) User Empowerment, 8) Privacy/Security. With millions of websites to choose from, the challenge to create successful websites has perhaps gone stiffer.

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